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Two new species of *Stemphylium* from Sinkiang, China

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Abstract — Two new species of *Stemphylium* from Sinkiang province in China are described and illustrated: *Stemphylium cremanthodii* and *S. amaranthi*. The type specimens are deposited in the Herbarium of the Department of Plant Pathology, Shandong Agricultural University (HSAUP), ex-type cultures at Centraalbureau voor Schimmelcultures (CBS).

Key words — hyphomycetes, taxonomy

Introduction

Wallroth (1833) erected the genus *Stemphylium* based on the type species, *Stemphylium botryosum* Wallr. 1833. Simmons (1967) delineated this genus by the following criteria that distinguish it from *Ulocladium* and *Alternaria*: (i) The percurrently proliferating conidiophore is the principal morphological characteristic of *Stemphylium* and (ii) the apical cell of a simple *Stemphylium* conidiophore was slightly to distinctly swollen. Câmara et al. (2002) recognized 33 species of *Stemphylium* worldwide. In recent years we have isolated numerous strains of *Stemphylium* spp. from leafspots on various plants, finding two hitherto undescribed fungi. These two *Stemphylium* species were isolated from necrotic leafspots on *Cremanthodium discoideum* and *Amaranthus retroflexus* from Sinkiang province in China.

Materials and methods

The specimens were collected from black spots on living leaves of plants during 2007–2008. Fungi were isolated by moistening the leaves, then picking single conidia growing from the tissues in Petri dishes. Those isolates were cultured on PDA (potato-dextrose agar) at 23°C and transferred to PCA (potato-carrot agar) after 3–5 days. Morphological descriptions of *Stemphylium* spp. were

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based on cultures that developed under standardized conditions (Simmons & Roberts 1993): potato-carrot agar (PCA) at ambient room temperature 23°C, under a daily fluorescent light/dark cycle of 8/16 h, and examined after 2–3 weeks. All microscopic characteristics were determined on the basis of measurements of 50 mature conidia and 30 conidiophores mounted in lactic acid at 100 × magnification.

Taxonomic descriptions

Stemphylium cremanthodii Y.F. Pei & X.G. Zhang, **sp. nov.** FIGURE 1

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Ex culturis in agaro 'potato-carrot' descripta. Coloniae effusae, pallide brunneae vel medio-brunneae. Mycelium superficiale, hyphae ramosae, septatae, pallide brunneae, laeves, 2.5–4.0 µm latae. Conidiophora solitaria, nonramosa vel raro ramosa, recta vel curvata, pallide brunnea vel medio-brunnea, laevia, 2–6-septata, 36–67× 3.5–5.0 µm, cylindrica, ad apicem usque 6.5–7.5 µm inflata, saepe unus vel bis proliferationis. Conidia singularia ex apice conidiophori et eius proliferationis oriunda, medio-brunnea, oblonga vel oblonga-ellipsoidea, ad apicem subtruncata, ad basim rotundata vel subtruncata, recta vel leviter curvata, 1–3 transversalibus septata, 1 plerumque ad mediano distincte constricta, 0–3 longitudinalibus vel obliquus septata, 18–31 × 9–19 µm, micromaculatus.

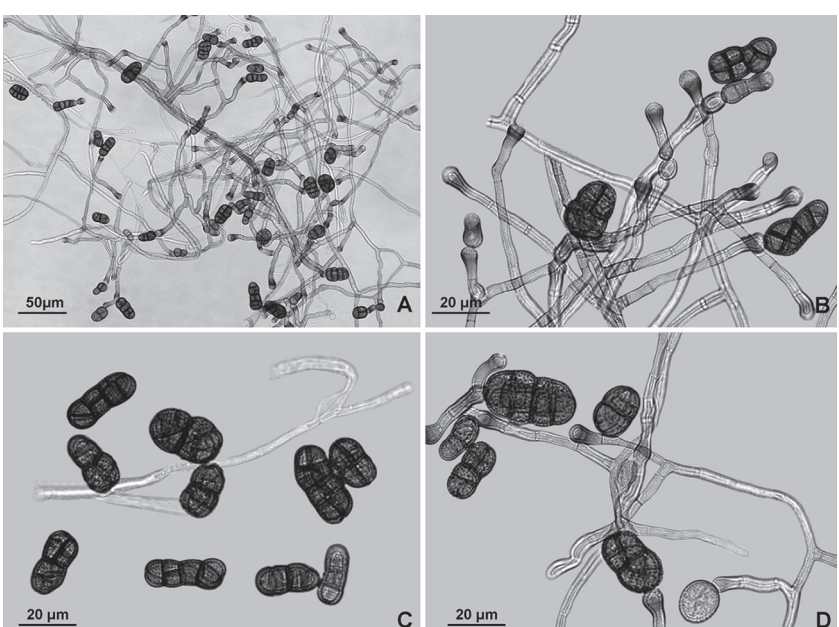

Fig. 1. *Stemphylium cremanthodii*.
A–C. Characteristics of mature conidia and conidiophores. D. Ornamentation of mature conidia.

Holotype: on leaves of *Cremanthodium discoideum* Maxim. (*Asteraceae*), pear orchards of Korla, Sinkiang province, Northwestern China. Otc. 16. 2008, Y.F. Pei, HSAUPpyf1830(1).

Etymology: in reference to the host genus, *Cremanthodium*.

Colonies on PCA effuse, pale brown to medium brown. Mycelium superficial, composed of branched, septate, pale brown, smooth, hyphae 2.5–4.0 µm wide. Conidiophores solitary, unbranched or occasionally branched, straight or curved, pale brown to medium brown, smooth, 2–6-septate, 36–67 × 3.5–5.0 µm, cylindrical, at the apex 1–2 percurrent proliferations which are swollen to 6.5–7.5 µm (Fig. 1B). Conidia develop singly through a narrow pore at the apex of each conidiophore, medium brown, oblong to oblong-ellipsoid, subtruncate at the apex, rounded or subtruncate at the base, straight or slightly curved, with 1–3 transverse septa and usually distinctly constricted in the middle, 0–3 longitudinal or oblique septa, 18–31 × 9–19 µm (av. 22.5 × 14.5 µm), L/W ratio is 1.5–2.6 (av. 2.0), micromaculate (Fig. 1C–D).

The conidia of this fungus resemble those of *S. eturmiunum* (Simmons 2001). Mature conidia of *S. cremanthodii* are cylindrical or oblong-ellipsoid, while those of *S. eturmiunum* are broadly ovoid or ellipsoid. On the other hand, the longer conidiophores differentiate *S. cremanthodii* from *S. eturmiunum* (10–40 µm). In addition, the ornamented conidial walls of *S. cremanthodii* are micromaculate, while those of *S. eturmiunum* are punctulate to punctate. Otherwise, a minor portion of conidia of *S. eturmiunum* have more transverse septa than those of *S. cremanthodii*.

Stemphylium amaranthi Y.F. Pei & X.G. Zhang, **sp. nov.** FIGURE 2

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Ex culturis in agaro 'potato-carrot' descripta. Coloniae effusae, pallide brunneae vel medio-brunneae. Mycelium superficiale, hyphae ramosae, septatae, pallide brunneae, laeves, 3.5–4.5 µm latae. Conidiophora solitaria, nonramosa vel raro ramosa, recta vel curvata, pallide brunnea, laevia, 3–7-septata, 55–160 ×5.5–6.5 µm, cylindrica, ad apicem usque 5.5-6.5 µm inflata. Conidia singularia ex apicem conidiophori et eius proliferationis oriunda, late ovoidea, gracilis-ellipsoidea vel oblonga-ellipsoidea, ad apicem subacutis vel obtusos, ad basim rotundata vel subtruncata, recta vel leviter curvata, pallidae brunnea vel medio-brunnea, cylindrica, 1–3–(4) transversalibus septata, 1 plerumque ad mediano distincte constricta, 0–3 longitudinalibus vel obliquus septata, 22–35×10 –19 µm, unconspicue micromaculatus.

Holotype: on leaves of *Amaranthus retroflexus* L. (*Amaranthaceae*), pears orchards of Korla, Sinkiang province, Northwestern China. Otc. 17. 2008, Y.F. Pei, HSAUPpyf1835(2).

Etymology: in reference to the host genus, *Amaranthus*.

Colonies on PCA spreading, pale brown to medium brown. Mycelium superficial, hyphae branched, septate, pale brown, smooth, 3.5–4.5 µm wide. Conidiophores solitary, unbranched or occasionally branched, straight or

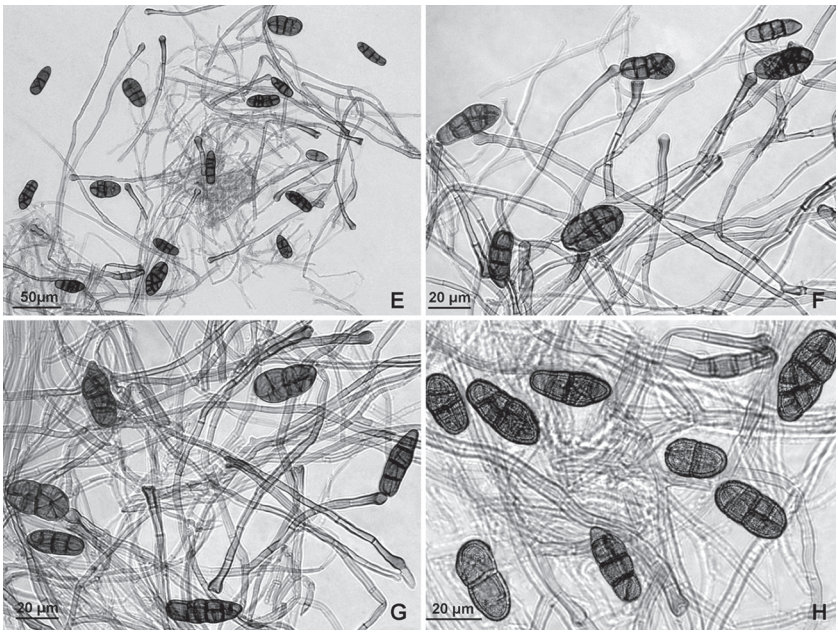

Fig.. 2. *Stemphylium amaranthi*.
E–G. Characteristics of mature conidia and conidiophores. H. Ornamentation of mature conidia.

curved, pale brown, smooth, 3–7-septate, 55–160 × 5.5–6.5 μm cylindrical, swollen at the apex 5.5–6.5 μm diam and distinctly flared (Fig. 2E). Conidia develop singly through a narrow pore at the apex of each conidiophore, pale brown to medium brown, broadly ovoid, slender-ellipsoid or oblong-ellipsoid, subacute to obtuse at the apex, rounded or subtruncate at the base, straight or slightly curved, with 1–3–(4) transverse septa, usually 1 distinctly constricted at the median, and 0–3 longitudinal or oblique septa, 22–35 × 10–19 μm (av. 29.5 × 14.5 μm), L/W ratio is 1.5–2.6 (av. 2.1), inconspicuously micromaculate (Fig. 2G–H).

The conidia of *S. amaranthi* are similar in shape to those of *S. bolickii* (Sobers & Seymour 1963). However, this species produces smaller conidia than *S. bolickii* (30–56 × 13–21 μm). Meanwhile, the conidia of *S. bolickii* have prominent basal scars, while those of *S. amaranthi* do not. Furthermore, the conidial wall ornamentation in *S. amaranthi* distinctly differs from the moderately verrucose ornamentation in *S. bolickii*.

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